

# Wind Energy Proposal

Mark J Smith

FPL Energy

# Background

- FERC adopted the California approach to scheduling wind in March of 2002.
- In it's SMD NOPR, FERC encourages the acceptance of California-like market design changes in other OATTs.
  - This may be the only aspect of the FERC NOPR that will remain unopposed.
- The operational challenges and current market structure in the NW may require changes to the CA design.

# The Process Proposal

- Wind Working Group formed pursuant to the 2004 Rate Case Settlement
- Detailed proposal to be presented to and reviewed by Wind Working Group
- Proof of state-of-the-art forecasting tool evaluated by BPA & Participants
- Tariff or Business Practice changes to be submitted at the pleasure of the Wind Working Group
- Wind Working Group Report on recommended Tariff or Business Practice changes

# Concept of Redesign

- All parties agree to use best efforts to schedule accurately but conceptually agree that deviations will unavoidably occur.
- In exchange for reasonable imbalance treatment, Wind generators voluntarily yield all scheduling flexibility.

# Details of Redesign

- TBL certifies a state-of-the art, unbiased wind forecast to use for both scheduling and dispatch.
- Participants agree to partially or entirely pay for wind forecasting service.
- A project-specific wind forecast is developed and transmitted to each participant.
- Participants schedule formulaically with forecast.
- Energy scheduled according to forecast is deemed delivered for settlement purposes and net deviations are aggregated over a billing month
- Participation is Voluntary

# Impacts of Redesign

For Participating Projects:

- Net volumetric deviations are settled at the weighted-average, real-time imbalance price.
  - The unbiased forecast will statistically yield a near-zero net deviation.
- No non-cost penalties are assessed
  - projects still subject to all other transmission related costs
- Energy can be sold without discount or risk in Hour Ahead markets.
- Better Access to Capital Markets

# Impacts of Redesign

## For the Grid Operator

- Near real-time forecasts of wind production are very accurate.
- Unit commitment decisions can be better optimized.
- Real-time imbalance calculation and redispatch can be biased to include actual wind generation.
- Ongoing commitment of market players to evaluate performance of system and impact on Control Area costs.

# Options for Consideration

Which party develops wind forecasts?

- Options:
  - BPA TBL, as they will be integrally involved in any regard, will have ready access to all scheduling information and will benefit most directly from the accuracy of the schedules.
  - BPA establishes standards for a “Certified Wind Forecasting Agent” allowing independent contractors to provide forecasts to generation schedulers and interact with BPA scheduling infrastructure.
  - Each entity performs the wind forecasting function subject to validation of reasonableness by BPA.



# Options for Consideration

Which party pays for wind forecasts?

- Options:
  - Participating Wind Generators reimburse some or all of the incremental costs BPA incurs through volumetric and/or capacity-based charges.
  - Allocations of renewables-oriented State or Federal funds, as available, are used to offset forecasting service costs.
  - Compensation for forecasting services are individually negotiated with BPA and/or third party suppliers.

# Issues for Discussion

What is “state-of-the-art” forecasting and what data are required?

- “Bookends”:
  - Start simple (persistence) and add meteorological and statistical complexity only if shown to be necessary.
  - Require that implementation modeling incorporate wind speed, direction, barometric pressure, relative humidity, remote (upwind) and local data streams, etc.

# Issues for Discussion

What forecast frequency is required and when will the forecast be binding?

- Options:
  - Provide continuous forecasts on a 10 minute frequency. The forecast that is produced 60 minutes prior to the trade hour is binding. (Allows for trading and scheduling prior to the last schedule update window.)
  - Provide higher or lower forecast frequency and move commitment forecast closer or further from the trade hour.
  - Consider a day-ahead schedule deemed-delivered.